REMARKS

This Amendment is filed in response to the Final Office Action filed on June 13,

2005. All objections and rejections are respectfully traversed.

Claims 1-20 are in the case.

Rejections Under 35 U.S.C. § 103

At Paragraphs 2-8 of the Office Action, claims 1-3 and 5-20 were rejected under

35 U.S.C. § 103 as being unpatentable in view of Lin et al. U.S. Patent Application Pub-

lication 2002/0073211 published on June 13, 2002. (hereinafter Lin)

The present invention, as set forth in representative claim 1, comprises in part:

1.   A load balancing system for distributing tasks to a processor re-
source of a processor pool, the system comprising:

a memory with a region organized into at least one memory block,
each memory block configured to store a session;

an interface for coupling the memory to the processor resource,
whereby the processor resource accesses the at least one memory block to
update information associated with the session;

*an access monitor coupled to the interface, wherein the access
monitor recognizes and tracks memory cycles associated with the at least
one memory block during a specified period of time and collects statis-
tics associated with the session; and*

*a central resource coupled to the access monitor, the central re-
source arranged to receive the statistics from the access monitor, and, in
response thereto, to assign tasks to the processor resource.*

As stated in the Amendment filed on March 15, 2005, Lin teaches a load balancer
(Figs. 2 and 3, item 128) interconnected to a plurality of webservers (Figs. 2 and 3, items
130, 132, 134). The load balancer receives and screens browser requests before sending
them to a selected webserver. *See* Paragraph 0009. A browser interface (Fig. 2 item
202), internal to the load balancer, connects to, and reads packets from, the network. Af-
ter the packets are read, a traffic flow measuring module (Fig. 2 item 204) analyzes the
packets directed to each webserver. *See* Paragraph 0037. If a webserver looks to be
overloaded, the load balancer redistributes requests among the webservers. *See* Para-
graph 0037 and 0039.

Lin also teaches a state server that monitors the webservers according to their ses-
sion activities and according to their availability, for the purpose of detecting failure of a
webserver. *See* Paragraph 0047. If the connection between a webserver and an applica-
tion server ever terminates, the state server will have retained relevant session informa-
tion so that an application server may attempt to reconnect and possibly get rerouted to
another webserver to continue a session. *See* Paragraph 0047. The state server monitors
activities of the webserver to determine if the web server failed. *See* Paragraph 0047.

Applicant respectfully urges that Lin is completely silent regarding Applicant's claimed novel *interface for coupling the memory to the processor resource...an access monitor coupled to the interface, wherein the access monitor recognizes and tracks memory cycles associated with the at least one memory block... and collects statistics associated with the session*, combined with a *central resource arranged to receive the statistics from the access monitor, and, in response thereto, to assign tasks to the processor resource.*

In summary, Lin teaches load balancing by monitoring traffic flow to webservers and failure recovery using a state server monitoring the webservers. In sharp contrast, Applicant claims recognizing and tracking *memory cycles* between a processor and a memory for the purpose of load balancing. In particular, Lin is completely silent regarding Applicant's novel technique for determining processor load based on memory activity. Rather, the state server of Lin monitors activities of the webserver to determine if the web server failed. Thus, Applicant's invention is neither taught nor suggested by Lin.

Response to "Response to Arguments"

With respect to the Examiner's arguments at Paragraph 12 of the Office Action, in response to the Amendment filed on March 15, 2005, note that Lin's load balancer monitors "the data flow rate for each individual webserver" for the purpose of load balancing, (*See* Paragraph 0037) and the state server monitors "whether the webserver is in service

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during a session" for the purpose of failure recovery (*See* Paragraph 0047). Neither ***recognizes and tracks memory cycles associated with the at least one memory block***, as claimed.

In response to Applicant's arguments filed on March 15, 2005, the Examiner stated, at Paragraph 12 of the Office Action:

> "Regarding applicant's remark that Lin does not make obvious applicant's claimed invention relating to an access monitor coupled to the interface, wherein the access monitor recognizes and tracks memory cycles associated with the memory blocks during a specified period of time and collects statistics associated with the session (page 11, last paragraph and page 12, last paragraph – page 13, 1st paragraph), the examiner disagrees. Lin clearly discloses such teaching in fig. 3 and page 5, paragraphs 46, 47, and page 8, paragraph 65: webserver creates a monitoring thread (heartbeat) to monitor the application servers once each session begins to determine whether the application servers terminate the connection with the webserver. Page 8, paragraph 67: webserver monitors the heartbeat of an application server... while monitoring the heartbeat for the socket pool, the webserver waits for a predetermined time for the heartbeat to indicate that the application server is still active." (Office Action dated 06/13/2005, Paragraph 12).

Applicant respectfully traverses the Examiner's characterization. Lin explicitly states, at Paragraph 0047:

> "In operation, users, which are electronic entities sending browser requests intended for application servers, send these browser requests to the load balancer 128. Load balancer 128 distributes these requests from

the users among the webservers 130-134 according to the availability of the webserver. The state server 136 monitors the webservers according to their session activities and according to their availability. Once a session is initiated, a state server monitoring thread is created between the webserver and the state server to monitor and track the session occurring with the user. A monitoring thread as used here is software code application [sic] that, when executed by a processor, creates a mechanism for facilitating communication between the state server and a webserver so that the state server can send and receive signals to and from the webserver to monitor its activities." (Lin, Paragraph 0047).

Thus, Lin teaches sending and receiving signals between a state server and a webserver to monitor activities. For example, in Figs. 8 and 10, Lin monitors heartbeat packets, not memory cycles. Lin is completely silent concerning Applicant's claimed novel invention, which recites: *the access monitor recognizes and tracks memory cycles associated with the at least one memory block... to assign tasks to the processor resource.*

Further, at Paragraph 12 of the Office Action, the Examiner states:

"Lin monitors the number of tasks assigned to each webserver according to the availability of the webserver (page 5, paragraph 47). Lin tracks the session occurring with the user. In other words, the session activities also involve the memory usage. Therefore, Lin directly if not indirectly tracking memory usage as claimed." (Office Action dated 06/13/2005).

Applicant respectfully traverses the Examiner's characterization and urges that Lin is totally silent regarding *"recognizes and tracks memory cycles associated with the*

at least one memory block". Applicant respectfully points out that there must be evidence in the file to support any finding by the Examiner. *In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001). In particular:

> "With respect to core factual findings in a determination of patentability, however, the Board cannot simply reach conclusions based on its own understanding or experience – or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings." *In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001) (copy attached).

Applicant respectfully urges that there is no evidence in the file that Lin monitors *memory cycles associated with the at least one memory block... to assign tasks to the processor resource*, as claimed. Rather, Lin discloses monitoring "the data flow rate for each individual webserver" for the purpose of load balancing (Lin, Paragraph 0037), and "whether the webserver is in service during a session" for the purpose of failure recovery (Lin, Paragraph 0047).

Thus, Lin completely lacks Applicant's claimed novel *interface for coupling the memory to the processor resource... an access monitor coupled to the interface, wherein the access monitor recognizes and tracks memory cycles associated with the at least one memory block... and collects statistics associated with the session*, combined

with a ***central resource arranged to receive the statistics from the access monitor, and,***

in response thereto, to assign tasks to the processor resource.

The above discussion in reference to claim 1 likewise applies to the remaining

independent claims 6, 10, 14, and 18-20.

Therefore, all independent claims are believed to be in condition for allowance.

Dependent claims 2-5, 7-9, 11-13, and 15-17 are believed to be dependent from

allowable independent claims, and likewise in condition for allowance.

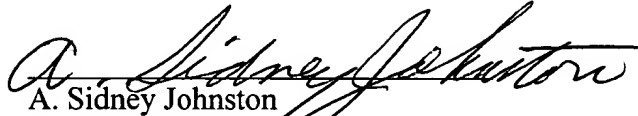Therefore, all dependent claims are believed to be in condition for allowance.

Favorable action is respectfully solicited.

Please charge any additional fee occasioned by this paper to our Deposit Account

No. 03-1237.

Respectfully submitted,

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as did the employee in *Paisley,* is not determinative of whether Mr. Woodman had a "career" in the military. Instead, Mr. Woodman's actions created a de facto resignation by indicating to PNG that he never intended to return to his civilian position. Mr. Woodman was separated from his NGT position in 1981, and he did not seek reemployment with the PNG as an NGT until nearly fourteen years later in 1995. Substantial evidence supports the Board's finding of career service.

CONCLUSION

For the foregoing reasons, Mr. Woodman is not entitled to reemployment rights under either VRRA or USERRA. The decision of the Board therefore is

AFFIRMED.

No costs.

In re Mary E. ZURKO, Thomas A. Casey, Jr., Morrie Gasser, Judith S. Hall, Clifford E. Kahn, Andrew H. Mason, Paul D. Sawyer, Leslie R. Kendall, and Steven B. Lipner.

Nos. 96–1258, 07/479,666.

United States Court of Appeals, Federal Circuit.

Aug. 2, 2001.

Patent applicant appealed decision of Board of Patent Appeals and Interferences

rejecting application for patent relating to method for improving security in computer systems. The Court of Appeals for the Federal Circuit, 111 F.3d 887, reversed on original submission, and again reversed on rehearing en banc, 142 F.3d 1447. Certiorari was granted and the Supreme Court reversed and remanded, 527 U.S. 150, 119 S.Ct. 1816, 144 L.Ed.2d 143. On remand, the Court of Appeals, Archer, Senior Circuit Judge, held that: (1) Board's reliance on alternative references was not warranted, and (2) Board's reliance merely on basic knowledge or common sense when evaluating patentability, not being based on any evidence in the record, was unwarranted.

Reversed.

1. Patents ⬡16(2, 3), 16.13, 36.1(1)

Obviousness is a legal question based on underlying factual determinations including: (1) the scope and content of the prior art, including what that prior art teaches explicitly and inherently; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. 35 U.S.C.A. § 103(a).

2. Patents ⬡113(6)

The Court of Appeals reviews the ultimate legal determination of obviousness of a claimed invention without deference. 35 U.S.C.A. § 103(a).

3. Patents ⬡113(6)

The Court of Appeals reviews factual findings underlying the determination of

Guard duty that results in eligibility for regular retirement from the Armed Forces is not considered non-career service.

32 C.F.R. § 104.3 (1997). Mr. Woodman's participation in the military was "continuous" and "repeated," because he was eligible for and received military retirement benefits.

obviousness of a claimed invention for substantial evidence.　35 U.S.C.A. § 103(a).

4. Administrative Law and Procedure
⚙791

"Substantial evidence" is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.

> See publication Words and Phrases for other judicial constructions and definitions.

5. Administrative Law and Procedure
⚙791

A review under the substantial evidence standard involves an examination of the record as a whole, taking into consideration evidence that both justifies and detracts from the agency's decision; the possibility of drawing two inconsistent conclusions from the evidence does not prevent an administrative agency's finding from being supported by substantial evidence.

6. Administrative Law and Procedure
⚙791

The substantial evidence standard of review of an agency's decision is analogous to the review of jury findings, and it is more deferential than the clearly erroneous standard of review.

7. Patents ⚙16.14

Board of Patent Appeals reliance on alternative references, to conclude that patent application for method of improving security in computer systems was obvious, was not warranted; alternative references did not support Board's conclusion and reliance on new combination of references, not previously considered, would have constituted impermissible new ground for rejection.　35 U.S.C.A. § 103(a).

8. Patents ⚙111

The Board of Patent Appeals cannot simply reach conclusions based on its own understanding or experience, or on its assessment of what would be basic knowledge or common sense, rather, the Board must point to some concrete evidence in the record in support of these findings.　35 U.S.C.A. § 103(a).

9. Patents ⚙111

Reliance by Board of Patent Appeals on its assessment of what was basic knowledge, that communication in trusted environments was performed over trusted paths, and that verifying a trusted command in UNIX over a trusted path was nothing more than good common sense, not being based on any evidence in the record, was unwarranted, for purpose of patent application relating to method for improving security in computer systems; although Board could rely on its expertise as to peripheral issues, patentability could not be determined by such reliance.　35 U.S.C.A. § 103(a).

Linda Moncys Isacson, Associate Solicitor, Office of the Solicitor, U.S. Patent and Trademark Office, of Arlington, VA, argued for the Commissioner of Patents and Trademarks.　With her on the brief were John M. Whealan, Solicitor, Kenneth R. Corsello and Thomas J. Finn, Associate Solicitors.

John F. Sweeney, Morgan & Finnegan, L.L.P., of New York, NY, argued for Mary E. Zurko, et al.　With him on the brief were Irene Kosturakis and Russell T. Wong, Compaq Computer Corporation, of Houston, TX. Of counsel on the brief were Michael O. Cummings and Jon T. Hohenthaner, Morgan & Finnegan, L.L.P., of New York, NY; and Ernest Gellhorn, of Washington, DC. Also of counsel were Jan-

ice M. Mueller, Assistant Law Professor, Suffolk University Law School, of Boston, MA; Israel Blum, Steven F. Meyer and Brenda Pomerance, Morgan & Finnegan, L.L.P., of New York, NY; and Ronald C. Hudgens, Corporate Law Department, Digital Equipment Corporation, of Maynard, MA.

Bruce M. Wexler, Fitzpatrick, Cella, Harper & Scinto, of New York, NY, for amicus curiae New York Intellectual Property Law Association. With him on the brief was Herbert F. Schwartz, Fish & Neave, of New York, NY.

Charles F. Schill, Foley & Lardner, of Washington, DC, for amicus curiae Federal Circuit Bar Association. With him on the brief were James A. Sprowl and Amy L. Wilsey. Of counsel on the brief were Michael E. Dergosits, President, George E. Hutchinson, Executive Director, and Rudolph P. Hofmann, Jr., Chair, Amicus Committee, Federal Circuit Bar Association, of Washington, DC.

Before PAULINE NEWMAN, Circuit Judge, ARCHER, Senior Circuit Judge, and MICHEL, Circuit Judge.

ARCHER, Senior Circuit Judge.

This case is before us on remand from the Supreme Court of the United States. *Dickinson v. Zurko,* 527 U.S. 150, 119 S.Ct. 1816, 144 L.Ed.2d 143, 50 USPQ2d 1930 (1999) ("*Zurko III* "). In *Zurko III,* the Court reversed our judgment and remanded the case because we had reviewed the factual findings of the Board of Patent Appeals and Interferences ("Board") for clear error, an incorrect standard of review.

The Board decision at issue, *Ex parte* Zurko, No. 94–3967 (Bd. Pat. Apps. & Int. Aug. 4, 1995), sustained the rejection of U.S. Patent Application No. 07/479,666 ("the '666 application") under 35 U.S.C. § 103 (1994). In our initial review of this decision, we determined that the Board's findings were clearly erroneous and we reversed. *In re Zurko,* 111 F.3d 887, 42 USPQ2d 1476 (Fed.Cir.1997) ("*Zurko I* "). At the Commissioner's suggestion, we then reheard this case en banc to reconsider the question of the appropriate standard of review. The Commissioner argued that Board findings should be reviewed under the standards of the Administrative Procedure Act (APA), namely the substantial evidence or arbitrary and capricious standard. 5 U.S.C. § 706 (1994). The en banc court held, however, that clear error was the correct standard of review for Board findings of fact and adopted the conclusions of the original panel decision. *In re Zurko,* 142 F.3d 1447, 46 USPQ2d 1691 (Fed.Cir.1998) ("*Zurko II* ").

The Commissioner then petitioned for review by the Supreme Court, and the Court reversed, holding that Board findings of fact must be reviewed under the APA standards of review. The Court did not specify which APA standard of review to apply, substantial evidence or arbitrary and capricious. We subsequently decided this question in *In re Gartside,* 203 F.3d 1305, 53 USPQ2d 1769 (Fed.Cir.2000), and held that substantial evidence is the correct APA standard of review for Board factual findings.

We now revisit the merits of our decision in *Zurko I,* applying the proper APA standard of review. In doing so, we conclude that the outcome of this case does not change with the application of this new standard of review. Because the factual findings underlying the Board's decision are not supported by substantial evidence, we reverse.

BACKGROUND

The '666 application concerns a method for more efficiently creating a secure computer environment. Secure, or "trusted," computer environments employ trusted software designed to preclude unauthorized users and to prevent unintended or unauthorized commands. Such trusted software is often quite costly, compared to untrusted software, so it is desirable to minimize the amount of trusted software in the system. Applicants claim a method for processing trusted commands with a minimum of trusted software.

Representative claim one reads as follows:

1. A machine-executed method for executing a trusted command issued by a user on a computer system, the computer system including an untrusted computing environment and a trusted computing environment, said method comprising the steps of:

(a) parsing the trusted command in the untrusted computing environment to generate a parsed command;

(b) submitting the parsed command to the trusted computing environment;

(c) displaying a representation of the trusted command to the user through a trusted path;

(d) receiving a signal from the user through a trusted path signifying whether the displayed representation accurately represents the user's intentions;

(e) if the signal signifies that the displayed representation does not accurately represent the user's intentions, then preventing the execution of the parsed command;

(f) if the signal signifies that the displayed representation accurately repre-sents the users intentions, executing the parsed command in the trusted environment.

As set forth in claim one, applicants' method involves processing and verifying a trusted command using both trusted and untrusted software. A trusted command is first processed by untrusted software to create a parsed command. The parsed command is then submitted to the trusted computer environment. Execution of this command requires verification along a trusted path. The parsed command is relayed to the user along a trusted path, and, if correct, the user can send a confirming signal back along this trusted path, allowing execution of the command. By processing a trusted command in this manner, the applicants contend they reduce the amount of trusted software. The applicants assert that the parsing step generally requires a large amount of software and that performing this step with untrusted software greatly reduces the amount of trusted code required to process a trusted command.

The Board sustained the Examiner's rejection of claims 1, 4, and 5 of the '666 application under 35 U.S.C. § 103 based on two prior art references. The primary reference is the UNIX operating system, as described in the applicants' information disclosure statement ("IDS"). According to this description, the UNIX system employs both untrusted and trusted code. Furthermore, certain commands in a UNIX system may be parsed in an untrusted environment, and then these parsed commands may be executed by "calling a trusted service that executes in a trusted computing environment."

The secondary reference, also described in applicants' IDS, is Dunford, FILER Version 2.20 ("FILER2"). This program

repeats back potentially dangerous commands, requesting confirmation from the user before execution.

Considering the teachings of these two references, the Board concluded that the invention claimed by the '666 application would have been obvious. The Board commented that "the artisan would have been led from these teachings to take the trusted command parsed in an untrusted environment and submitted to the trusted computing environment, as taught by UNIX, and to display the parsed command to the user for confirmation prior to execution, as suggested by [FILER2]." *Ex parte Zurko,* slip op. at 6–7. According to the Board, this combination would render the claimed invention obvious.

The Board also responded to applicants' arguments that neither reference discloses a trusted path communication to the user and that no teaching of the prior art references motivates the combination of these references to create the claimed invention. The Board said that communication along a trusted path, if not explicit in the prior art, is either inherent or implicit. *Id.* at 7. The Board further adopted the Examiner's assertion that "it is basic knowledge that communication in trusted environments is performed over trusted paths." *Id.* at 8. As for the motivation to combine these references, the Board concluded that it "would have been nothing more than good common sense" to combine the teachings of these references. *Id.* The Board noted that FILER2 taught the verification of dangerous commands in general, suggesting verification of the parsed command submitted to the trusted computing environment in UNIX. Because this verification occurs within a trusted environment, it is "basic knowledge," according to the Board, that this verification would occur along a trusted path. *Id.* at 7–8.

Reviewing the Board's decision in *Zurko I,* we held that "the Board's finding that the prior art teaches, either explicitly or inherently, the step of obtaining confirmation over a trusted pathway [was] clearly erroneous." *Zurko I,* 111 F.3d at 889, 42 USPQ2d at 1478. Indeed, we noted that neither reference relied upon by the Board taught communication with the user over a trusted pathway. *Id.,* 42 USPQ2d at 1479. We further held that the Board clearly erred in finding that the prior art teaches communicating with the user over both a trusted and an untrusted path. This finding was in conflict with the Board's other finding that trusted communications must be over trusted paths. *Id.* at 890, 42 USPQ2d at 1479.

On remand, applicants urge that we maintain our reversal of the Board's decision, arguing that the decision is legally flawed, or, alternatively, that the Board's factual findings fail under the APA standard of review. The Commissioner respond that we must affirm the Board decision because its findings are supported by substantial evidence in the record.

DISCUSSION

[1–3] A claimed invention is unpatentable for obviousness if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103(a) (1994); *Graham v. John Deere Co.,* 383 U.S. 1, 14, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ 459, 465 (1966). Obviousness is a legal question based on underlying factual determinations including: (1) the scope and content of the prior art, including what that prior art teaches explicitly and inherently; (2) the level of ordinary skill in the prior

art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. *Graham*, 383 U.S. at 17–18, 86 S.Ct. 684, 15 L.Ed.2d 545, 148 USPQ at 467; *In re Dembiczak*, 175 F.3d 994, 998, 50 USPQ 1614, 1616 (Fed.Cir.1999); *In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed.Cir.1995) (stating that the inherent teachings of a prior art reference is a question of fact). We review the ultimate legal determination of obviousness without deference. *In re Dembiczak*, 175 F.3d at 998, 50 USPQ at 1616. We review factual findings underlying this determination for substantial evidence. *In re Gartside*, 203 F.3d at 1311–16, 53 USPQ2d at 1772–75.

[4, 5] Substantial evidence is "such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229, 59 S.Ct. 206, 83 L.Ed. 126 (1938); *see also Zurko III*, 527 U.S. at 162, 119 S.Ct. 1816, 50 USPQ2d at 1772–75. A review under this standard "involves an examination of the record as a whole, taking into consideration evidence that both justifies and detracts from the agency's decision." *In re Gartside*, 203 F.3d at 1312, 53 USPQ2d at 1773 (citing *Universal Camera Corp. v. NLRB*, 340 U.S. 474, 487–88, 71 S.Ct. 456, 95 L.Ed. 456 (1951)). In addition, "the possibility of drawing two inconsistent conclusions from the evidence does not prevent an administrative agency's finding from being supported by substantial evidence." *Consolo v. Fed. Maritime Comm'n*, 383 U.S. 607, 619–20, 86 S.Ct. 1018, 16 L.Ed.2d 131 (1966).

[6] The substantial evidence standard has been analogized to the review of jury findings, and it is generally considered to be more deferential than the clearly erroneous standard of review. *Zurko III*, 527 U.S. at 162–63, 119 S.Ct. 1816, 144 L.Ed.2d 143, 50 USPQ2d at 1936. The Supreme Court noted in *Zurko III*, however, that this generally recognized difference is "a subtle one," so fine that in its review of case law in the *Zurko III* decision, the Court could not find any other case where a reviewing court had conceded that the standard of review made a difference. *Id.* Moreover, while appellate courts must respect agency expertise, the Court has "stressed the importance of not simply rubber-stamping agency fact finding." *Id.* (citing *Universal Camera*, 340 U.S. at 477–78, 71 S.Ct. 456). Indeed, the Court observed that Federal Circuit judges "will examine [Board fact] findings through the lens of patent-related experience—and properly so, for the Federal Circuit is a specialized Court." *Id.* The Court further noted that this "comparative expertise, by enabling the Circuit better to understand the basis for the [Board's] finding of fact, may play a more important role in assuring proper review than would a theoretically somewhat stricter standard." *Id.*

With this guidance from the Supreme Court in mind, we now reconsider the Board's decision. Applicants urge that we reaffirm our conclusion in *Zurko I*, alleging numerous legal and factual errors in the Board decision. These arguments center around two issues. First, applicants argue that the prior art relied upon by the Board does not disclose one of the limitations of their claimed invention, namely communication between a trusted environment and the user along a trusted path. Second, applicants claim that there is no substantial evidence support for the Board's finding of motivation to combine the cited references to yield the claimed invention. We only need to consider the first issue raised by applicants.

[7] As to this first issue, the Commissioner apparently concedes that neither the UNIX IDS disclosure nor FILER2 teaches communications between the user and the trusted environment along a trusted path. Nevertheless, the Commissioner maintains that the Board's findings concerning the content of the prior art are supported by four other references in the record.[1] The Commissioner argues that these additional references describe modified UNIX systems that allow communication over both trusted and untrusted paths. Therefore, the Commissioner argues, the Board's general findings concerning the content of the prior art have substantial evidence support, as does its ultimate conclusion of obviousness.

We are unpersuaded by the Commissioner's arguments. The Board's conclusion of obviousness was based on the UNIX and FILER2 references. The Board's findings with respect to these references simply cannot be supported by the alternative references identified by the Commissioner on remand. To the contrary, these alternative references merely confirm the well-known fact that conventional UNIX systems do not allow communication between the user and the trusted environment along a trusted path. For example, Johrie et al., U.S. Pat. No. 4,918,-653, comments that "[s]ome examples of prior art multi-user operating systems which have not provided an effective mechanism for establishing a trusted path include UNIX...." Johrie, col. 1, ll. 60–63.

The Commissioner also cannot now mend the Board's faulty conclusion of obviousness by substituting these alternative references for those relied upon by the Board. This new combination of references would constitute a new ground for rejection, not considered or relied upon by the Examiner or the Board. It is well settled that it would be inappropriate for us to consider such a new ground of rejection. In re Margolis, 785 F.2d 1029, 1032, 228 USPQ 940, 942 (Fed.Cir.1986); see also Koyo Seiko Co., Ltd. v. United States, 95 F.3d 1094, 1099 (Fed.Cir.1996) (holding that "[t]he grounds upon which an administrative order must be judged are those upon which the record discloses that its action was based.") (quoting SEC v. Chenery Corp., 318 U.S. 80, 87, 63 S.Ct. 454, 87 L.Ed. 626 (1943)).

[8, 9] Finally, the deficiencies of the cited references cannot be remedied by the Board's general conclusions about what is "basic knowledge" or "common sense" to one of ordinary skill in the art. As described above, the Board contended that even if the cited UNIX and FILER2 references did not disclose a trusted path, "it is basic knowledge that communication in trusted environments is performed over trusted paths" and, moreover, verifying the trusted command in UNIX over a trusted path is "nothing more than good common sense." Ex parte Zurko, slip op. at 8. We cannot accept these findings by the Board. This assessment of basic knowledge and common sense was not based on any evidence in the record and, therefore, lacks substantial evidence support. As an administrative tribunal, the Board clearly has expertise in the subject

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1. Specifically, the Commissioner points to Johrie et al, U.S. Pat. No. 4,918,653; E.J. McCauley et al., KSOS: The Design of a Secure Operating System, Ford Aerospace and Communications Corp. (1979); Stanley R. Ames, Jr. et al., Security Kernal Design and Implementation: An Introduction, IEEE Cat. No. 830700-001 (July 1983); and Simon Wiseman et al., The Trusted Path Between Smite and the User, Proceedings 1988 IEEE Symposium on Security and Privacy (April 18–21, 1988).

matter over which it exercises jurisdiction. This expertise may provide sufficient support for conclusions as to peripheral issues. With respect to core factual findings in a determination of patentability, however, the Board cannot simply reach conclusions based on its own understanding or experience—or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings.[2] To hold otherwise would render the process of appellate review for substantial evidence on the record a meaningless exercise. *Baltimore & Ohio R.R. Co. v. Aberdeen & Rockfish R.R. Co.*, 393 U.S. 87, 91–92, 89 S.Ct. 280, 21 L.Ed.2d 219 (1968) (rejecting a determination of the Interstate Commerce Commission with no support in the record, noting that if the Court were to conclude otherwise "[t]he requirement for administrative decisions based on substantial evidence and reasoned findings—which alone make effective judicial review possible—

would become lost in the haze of so-called expertise"). Accordingly, we cannot accept the Board's unsupported assessment of the prior art.

CONCLUSION

The Board's conclusion of obviousness was based on a misreading of the references relied upon and, therefore, lacks substantial evidence support. Accordingly, the Board's judgment is reversed.

REVERSED.

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2. As described above, we cannot accept the Commissioner's invitation to now search the record for references in support of the Board's general conclusions concerning the prior art. Even if any such references could support these conclusions, it would be inap-

propriate for us to consider references not relied upon by the Board. *In re Margolis*, 785 F.2d at 1032, 228 USPQ at 942.